DOCUMENT RESUME

ED 306 289 TM 013 151

AUTHOR Bowman, Harry L.; And Others
TITLE Validation of Selected Specialized Area Tests and Recommended Performance Standards for Initial Teacher Certification in Tennessee.
PUB DATE Mar 89
NOTE 21p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 27-31, 1989).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Faculty; Content Analysis; Elementary Secondary Education; Higher Education; Knowledge Level; *Licensing Examinations (Professions); Minimum Competency Testing; Public School Teachers; Scores; *Scoring; State Programs; *State Standards; *Teacher Certification; Teacher Educators; Testing Programs; *Test Validity
IDENTIFIERS Memphis State University TN; *Standard Setting; *Teacher Competency Testing; Tennessee State Department of Education

ABSTRACT

Memphis State University conducted a study for the Tennessee Department of Education to determine the validity of 11 previously unvalidated, extensively revised, or new Educational Testing Service (ETS) tests as measures of the skills and knowledge required for specific initial certification endorsements of public school personnel in Tennessee. Another objective was to formulate data-based recommendations for minimum qualifying scores for any of the tests already established as valid in Tennessee. The study strategy involved groups or panels of teacher education institution personnel (n=99) in the review of test content, groups of local school district professional staff (n=113) in the assessment of job relevance of test items, and the use of both types of reviewers (n=270) in the estimation of correct response rates by minimally qualified certification applicants. A 17-member Standards Committee reviewed the work of the panels and developed recommendations on minimum qualifying scores for examinees from ETS administrations of the tests. In all, 12 tests were judged valid for use in Tennessee. The Standards Committee recommended minimum qualifying scores for four valid tests with extensive data: (1) biology; (2) music education; (3) school guidance and counseling; and (4) special education. Adequate normative data to establish minimum qualifying scores was judged not available for the other valid tests, and the Committee recommended that data be collected until there are sufficient data to establish minimum qualifying scores. Four appendices summarize data analyses. (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED306289

VALIDATION OF SELECTED SPECIALIZED AREA TESTS AND RECOMMENDED PERFORMANCE STANDARDS FOR INITIAL TEACHER CERTIFICATION IN TENNESSEE

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

HARRY L. BOWMAN

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Harry L. Bowman
John R. Petry
Ernest A. Rakow
Cordelia Douzenis
Walter Emanuel
College of Education
Memphis State University
Memphis, Tennessee 38152

James Parker
Collin Ballance
Tennessee State Department of Education
Cordell Hull Building
Nashville, Tennessee 37219

Paper presented at the 1989 Annual Meeting of the American Educational Research Association; San Francisco, California; March 27 - 31, 1989

TM013151

BEST COPY AVAILABLE

Introduction

Statutory testing requirements for the initial certification/licensure and endorsement of public school personnel in Tennessee were established by the Comprehensive Education Reform Act of 1984. The legislation mandated that applicants for initial certification must present minimum qualifying scores on secured tests of communication skills, general knowledge, professional knowledge, and endorsement area specializations. The act stipulated that the requirements would become effective July 1, 1984, or as soon thereafter as the tests could be validated and have minimum qualifying scores established.

A statewide study conducted in 1984 (Bowman, Bowyer, Petry, Rakow, Nothern, & Jacobs) determined that the three NTE Core Battery tests and 23 of the 25 available NTE Specialty Area tests were valid to use as initial certification tests in Tennessee. The study also provided the data to recommend minimum qualifying scores for the valid tests. Upon completion of the study, the State Board of Education immediately established minimum score requirements for the NTE Core Battery tests effective on September 1, 1984. Subsequently, the State Board of Education instituted minimum score requirements for valid NTE Specialty Area tests that corresponded to 14 endorsement areas.

During 1987-88, a study was conducted in Tennessee with 14 endorsement area specialization tests available from Educational Testing Services (ETS), Princeton, NJ. The eight NTE Specialty Area tests included a previously unvalidated test (Art Education), two extensively revised valid tests (Music Education and School Guidance and Counseling), two new tests (School Psychologist and Special Education), and three tests extracted from validated more general tests (Biology, Chemistry, and Physics). Six tests developed collaboratively by ETS and a consortium of states with state-sponsored testing

programs for teacher certification were available for the study (Earth/Space Science, Health Education, Marketing and Distributive Education, Psychology, Teaching Hearing Impaired Students, and Teaching Visually Impaired Students).

Objectives of the Study

The study conducted for the Tennessee State Department of Education by Memphis State University had two objectives. They were (1) to determine the validity of the 11 previously unvalidated, extensively revised, and new ETS tests as measures of the knowledge and academic skills required for specific initial certification endorsements of public school personnel in Tennessee and (2) to formulate data-based recommendations on minimum qualifying scores for any of the 14 tests that are valid to use in Tennessee. The study was delimited to potential use of the ETS tests for initial certification endorsement rather than to select personnel for employment.

Strategy

The strategy utilized in the study involved groups or panels of teacher education institutional personnel in the review of test content, local school district professional staff in the assessment of job relevance of test items, and both groups in the estimation of correct response rates by test item among minimally qualified certification applicants. A separate committee reviewed the data compiled from the responses of these panels in order to make decisions on test validity and recommendations on minimum qualifying scores for valid tests. This strategy has been used in comparable studies of ETS tests by ETS (Faggen, 1983; Masonis, 1983) and Memphis State University (Bowman et al., 1984; Bowman, Petry, & Bellott, 1988).

Rationale for the Methodology

The literature on validation and standard-setting for certification

examinations does not demonstrate a singular appropriate or clearly superior methodology. The use of professional judgment under relatively controlled conditions as employed in this study complies with accepted measurement principles that have been widely used. The legal rationale for this study is based on the requirement that validity must be demonstrated using job relatedness as the referent (Roth, 1984).

The validation aspect of the study complies with the professional guidelines promulgated in Standards for Educational and Psychological Tests (American Psychological Association, 1974). The standards for content validation require the following:

> Evidence of content validity is required when the test user wishes to estimate how an individual performs in the universe of situations the test is intended to represent. . . . To demonstrate the content validity of a set of test scores, one must show that the behaviors demonstrated in testing constitute a representative sample of behaviors to be exhibited in a desired performance domain. (p. 28)

Consequently, the content review by higher education faculty members focused on the congruence between the content domains of the ETS tests and the related domains of the professional preparation programs in Tennessee.

The "General Standards for Validity Studies" in the Uniform Guidelines on Employee Selection Procedures (Equal Employment Opportunity Commission, 1978) state that:

> Evidence of the validity of a test or other selection procedure through a construct validity study should consist of data showing that the procedure measures the degree to which candidates have identifiable characteristics which have been determined to be important in successful performance in the job for which the candidates are to be

evaluated. (p. 38298)

Therefore, job relevance of the ETS tests was included as an additional dimension of the tests' validity assessment. Personnel from local school districts reviewed the ETS tests to provide information on the relevance of the tests to the responsibilities of beginning professional public educators in Tennessee.

In establishing minimum score requirements, the Standards for Educational and Psychological Tests state that "If specific cutting scores are to be used as a basis for decisions, a test user should have a rationale, justification, or explanation of the cutting scores adopted" (APA, p. 66). The rationale for the recommendations on minimum qualifying scores derived in this study is that the scores must be based on the collective judgments of representative experts. The personnel who performed the knowledge estimation function were qualified experts from local school districts and professional preparatory higher education institutions throughout Tennessee. Their combined judgments constituted the basis for determining the minimum scores on knowledge and academic skills required for initial certification and endorsement of professional public education personnel in Tennessee.

Panel Selection

The nomination of potential panel members was made in response to a written request from the Commissioner of Education that specified by area of specialization the number of nominees to be named. Nominations were submitted by the chief academic administrators of the teacher education units in Tennessee with preparation programs for the relevant specialized areas and a broadly representative sample of local school districts throughout the state. Only one or two institutions in Tennessee offer preparation programs in specialized areas for two candidate tests: Teaching Hearing Impaired Students

and Teaching Visually Impaired Students. The limited number of higher education faculty members in these specialized areas necessitated the use of some recent graduates of these programs as content reviewers.

The selection of panel members was performed by the study staff based on several factors. Within each area of specialization, nominees were selected on the basis of requisite expert qualifications, representation of males and females, representation of relevant ethnic groups, and representation of institutions offering specialist training programs in Tennessee. The numbers of panelists were 99 higher education content reviewers, 113 local school district job relevance reviewers, and 270 higher education and local school district knowledge estimators.

Panel Functions

A current edition of each ETS test was supplied by Educational Testing Service for review by the panel members selected for each test. All panel members worked independently in conducting the reviews following instructions given by ETS personnel, who supervised the data collection with assistance from project staff. One-day meetings to collect the data were held at six sites across the state during April, 1988.

Each of the content review panel members from higher education institutions performed three tasks. First, the panelist examined each test question on the assigned test to judge whether or not at least 90% of the students completing the appropriate preparation program would have the opportunity to acquire the knowledge or academic skills to answer the question correctly. Second, the panelist made judgments about the congruence between the proportion of the test devoted to each topic and the emphasis on the topic in the curriculum required for professional preparation. Third, the panelist indicated the degree to which the test as a whole was congruent with the total

professional preparation program.

Each of the job relevance panel members from local school districts reviewed each test question on the assigned test to make judgments about the relevance of the knowledge or academic skills to competent performance as a beginning specialized educational practitioner in Tennessee. The relevance of each item was judged as Crucial, Important, Questionable, or Not Relevant.

The knowledge estimation panel members were the individuals who performed the content review and job relevance assessments. At the test question level, each panelist made judgments about the difficulty of each test question for persons who have the minimum levels of knowledge and academic skills necessary for competent performance as a beginning educational practitioner in Tennessee.

Standards Committee

A group of 17 educational and lay representatives was selected by the project staff to serve as the Standards Committee for the study. The committee met in Nashville on August 10-11, 1988, to perform two tasks. First, the committee reviewed the data on appropriateness (content review and job relevance) for each of the 11 ETS tests subject to validation and made a decision on its validity for use in Tennessee. Second, the committee developed recommendations on minimum qualifying scores for the valid ETS tests based on a review of the knowledge estimation data and distributions of scores for the ETS test examinees.

Presentation of Data

Two types of information are summarized in this section of the paper. They are demographic data on panel participants and the Standards Committee and results of the panel functions (content review, job relevance review, and knowledge estimation).

Demographic Data

The personnel who performed the three panel functions were described by gender and racial background. The three panel groups were distributed on these variables as follows:

	Content Review (N=99)	Job Relevance Review (N=113)	Knowledge Estimation (N=270)
Gender			
Male	62%	24%	48%
Female	36%	76%	51%
No Response	2%	0%	1%
Racial Group			
Black	9%	14%	11%
White	84%	83%	82%
No Response	7%	3%	7%

The 17-member Standards Committee was a broadly representative group of educators and lay personnel from Tennessee. The committee was described on the variables of gender and racial background as follows:

Gender	
Male	53%
Female	47%
Racial Group	
Black	35%
White	65%

Content Review

The content review of the ETS tests was performed at three levels: test item, test topic, and total test. Appendix A presents the results of the item review for each of the 11 tests. The data indicated that over 50% of the panelists who reviewed each test reported at least 87% of the items for all tests except Art Education are included in the curricula of the specialized preparation programs. While the percentages of items included are generally lower, the same patterns exist when the 60% and 70% criteria are applied to the

responses of the panelists.

Appendix B contains a derived index for each test that represents the degree of difference between the topical emphases of the test and the specialized preparatory curriculum. Based on an index of 0 (close similarity) to 100 (little similarity), the range of the index values was from 14.4 for the Teaching Visually Impaired Students test to 64.7 for the School Guidance and Counseling test. With the exception of the latter test, the index values for the remainder of the tests were less than 50.

The data summarized in Appendix C represent the comparison of each total test and the overall related professional preparatory curriculum. The percentages of panelists who indicated close parallel or some difference were relatively high for most tests. Only two tests as a whole were judged to be appreciably dissimilar to the related preparatory program.

Job Relevance Review

Appendix D presents the results of the job relevance ratings of test items for each ETS test by local school district personnel. Responses of Crucial or Important were defined as indicating relevance for items in this analysis. Over 50% of the panelists who reviewed each test indicated that more than 80% of the items were relevant to competent performance as a beginning specialized practitioner in Tennessee. Over 70% of the panelists for each test judged about 60% or more of the items as being job relevant.

Knowledge Estimation

The responses of panel members in performing the knowledge estimation function for each of the 14 tests were analyzed to derive estimated raw score means for minimally qualified certification applicants. Using conversion factors provided by ETS, the scaled score equivalent of the raw score mean was

computed for each test. The results for the 14 tests included in this study are reported in Table 1.

The scaled scores for each ETS subject-matter test can vary from a low of 250 to a high of 990, a 740-point difference between the lowest and highest scores possible. Scores cannot be compared directly among the subject-matter tests for two reasons. First, the tests are normed independently on different groups of examinees. Second, the standard errors of measurement, an index of the precision of test scores, vary to a considerable degree among the tests.

Standards Committee Actions

In order to act formally as a committee, the Standards Committee elected a member to serve as chair during its deliberations. The decisions on test validity and recommendations on minimum qualifying scores and related matters are reported below.

Test Validity Decisions

The Standards Committee was presented all data collected and analyzed in performing the content review and job relevance review functions. (Knowledge estimation data were not released to the committee until the test validity decisions had been made.) The committee considered concurrently the content review results (test item, test topic, and total test levels) and job relevance review results for each test independently in making decisions on test validity. Utilizing this approach, the committee concluded that 9 of the 11 ETS tests for which decisions were required were valid to use in Tennessee as initial certification endorsement area tests (see Table 2). The two tests declared invalid for this purpose were the Art Education and Earth/Space Science tests that were judged to be insufficiently congruent in content with the related professional preparatory programs.

Table 1

Summary of Analyses on Estimated Scores for Minimally Qualified Certification Candidates by Test

Test (Number and Name)		Items Total/Scored	Mean Raw Score	Mean Scaled Score	N
11	Music Education	150/150	64.641	551.193	19
13	Art Education	150/145	62.296	552.839	21
23	Biology	150/150	69.456	480.158	24
24	Chemistry	120/120	52.602	458.556	18
26	Physics	120/119	53.457	547.478	20
27	Teaching Hearing Impaired Students	120/120	66.175	531.364	18
28	Teaching Visually Impaired Students	120/120	72.359	579.463	19
35	Special Education	150/148	73.525	543.612	19
39	Psychology	120/120	57.533	464.147	18
40	School Psychologist	135/122	60.792	511.004	16
42	School Guidance and Counseling	145/140	73.553	592.008	18
55	Health Education	120/119	60.594	491.914	22
56	Marketing and Distributive Education	120/120	69.459	556.902	19
57	Earth/Space Science	120/116	56.892	504.139	19

Table 2

Compilation of Committee Decisions on Validity of Selected ETS Subject-Matter Tests for Teacher Licensure Endorsements in Tennessee - 1988 Study

Test (Number and Name)		Validity Decision
11	Music Education	Valid
13	Art Education	Not Valid
27	Teaching Hearing Impaired Students	Valid
28	Teaching Visually Impaired Students	Valid
35	Special Education	Valid
39	Psychology	Valid
40	School Psychologist	Valid
42	School Guidance and Counseling	Valid
55	Health Education	Valid
56	Marketing and Distributive Education	Valid
57	Earth/Space Science	Not Valid

Recommended Minimum Qualifying Scores

The Standards Committee received the results of the knowledge estimation function for minimally qualified beginning professional practitioners based on the judgments of the panel members who reviewed the 14 ETS tests. The data were presented for two sub-sets of tests - the five tests (four of these having been judged valid) with sufficient numbers of examinees to derive normative information and the nine tests (eight of these having been judged valid) without sufficient numbers of examinees to derive normative information.

The data reported for the tests with normative information were the following: number of examinees; scaled score mean, standard deviation, and standard error of measurement; and knowledge estimation scaled score mean. In addition, the values for scaled score means minus 1, 2, 3, and 4 standard errors of measurement were derived. The information for the tests with relatively small numbers of examinees included the following data: number of examinees, raw score mean and standard deviation, scaled score mean and standard deviation, and knowledge estimation mean. Data were not available for any of the tests on score distributions of examinees classified by any variable (e.g. region, state, or racial group).

After a thorough review of the knowledge estimation and examinee performance data, the committee recommmended specific minimum qualifying scores for the four valid tests with normative data (Biology, Music Education, School Guidance and Counseling, and Special Education). Further, the committee recommended that all applicants for initial certification with endorsements in the eight areas corresponding to the valid tests without normative data should be required to submit scores on the appropriate tests without any minimum qualifying scores being established. The recommendations for the 12 valid tests are summarized in Table 3.

Additional Recommendations

The committee as a whole was concerned about the potential adverse impact of recommended minimum qualifying scores on legally protected minorities as well as the lack of sufficient examinee performance data to recommend minimum qualifying scores for several tests. In response to these concerns, the committee recommended to the State Board of Education the following:

1. Monitor the performance of examinees on the four tests for which minimum qualifying scores are recommended in order to determine the

Table 3

Committee Recommendations on Minimum Qualifying Scores
for Valid ETS Tests to Use in Tennessee - 1988 Study

Test (Number and Name)		Recommendation*
11	Music Education	480
23	Biology	420
24	Chemistry	No minimum
26	Physics	No minimum
27	Teaching Hearing Impaired Student	No minimum
28	Teaching Visually Impaired Students	No minimum
35	Special Education	490
39	Psychology	No minimum
40	School Psychologist	No minimum
42	School Guidance and Counseling	540
55	Health Education	No minimum
56	Marketing and Distributive Education	No minimum

* Note: No minimum - score submission required without minimum score established

impact on special groups of examinees because data are not available currently to make judgments on this matter.

2. Collect data on the performance of examinees who are required to submit scores for the eight tests without minimum qualifying scores, these data to include racial group membership, until sufficient data are available to be considered for setting minimum qualifying scores.

State Board of Education Actions

On September 30, 1988, the Tennessee State Board of Education adopted all recommendations from the Standards Committee for this study. With this action and previous decisions, the Board has established minimum qualifying test scores for 14 initial certification endorsements and requires submission of scores on an additional 8 valid endorsement area tests without specified minimum standards. Initial certification applicants for all endorsement areas are currently required to submit minimum qualifying scores on tests of communication skills, general knowledge, and professional knowledge.

The State Board of Education continues to demonstrate a commitment to full implementation of the 1984 legislative mandate by establishing minimum score requirements for certification endorsement area tests as soon as test validity and standards-setting studies are conducted. The requirement to submit scores without specifying minimum standards on validated tests will facilitate the creation of an adequate examinee performance database to establish standards for new tests at the earliest possible time. The complete implementation of the legislative requirements for use of teacher licensure tests will be a long-term endeavor that could have far-reaching effects on the preparation, quality, and quantity of personnel who are certified to work in the state's public schools.

References

American Psychological Association, American Educational Research Association, & National Council on Measurement in Education. (1974). Standards for educational and psychological tests. Washington, DC: American Psychological Association.

Bowman, H. L., Bowyer, C. H., Petry, J. R., Rakow, E. A., Nothern, E. F., & Jacobs, J. B. (1984). Technical report on validation of the National Teacher Examinations Core Battery and Speciality Area tests and recommendation of performance standards for initial certification in Tennessee. Memphis, TN: Memphis State University.

Bowman, H. L., Petry, J. R., & Bellott, F. K. (1988). Report on Validation Study of selected ETS subject-matter tests and recommendation of performance standards for teacher certification endorsement in Arkansas. Memphis, TN: Memphis State University.

Equal Employment Opportunity Commission, Civil Service Commission, Department of Labor, & Department of Justice. (1978). Uniform guidelines on employee selection procedures. Federal Register, 43 (166), 38290-38315.

Faggen, J. (1983). Report on a study of the NTE Core Battery Tests by the State of New York. Princeton, NJ: Educational Testing Service.

Masonis, E. J. (1983). Report on a study of the NTE Test of Professional Knowledge by the state of North Carolina. Princeton, NJ: Educational Testing Service.

Roth, R. (1984, April). Validation study of the National Teacher Examinations for certification in the state of Arkansas. In W. Harris (Chair), Validation of the National Teacher Examinations: A multi-state perspective. Symposium conducted at the Annual Meeting of the American Educational Research Association and the National Council on Measurement in Education, New Orleans.

Appendix A

Summary of Data Analyses on Content Review Ratings of Test Items by Test*

Test (Number and Name)		No. of Items	Percentage of College Personnel Who Rated Item Content As Appropriate for Curriculum					N
			Over 50%	Over 60%	Over 70%	Over 80%	Over 90%	
11	Music Education	150	87	73	65	55	36	12
13	Art Education	150	75	62	48	31	12	9
23	Biology	150	NA	NA	NA	NA	NA	NA
24	Chemistry	120	NA	NA	NA	NA	NA	NA
26	Physics	120	NA	NA	NA	NA	NA	NA
27	Teaching Hearing Impaired Students	120	99	98	89	74	45	9
28	Teaching Visually Impaired Students	120	93	93	77	77	44	6
35	Special Education	150	94	90	79	57	32	10
39	Psychology	120	93	86	71	44	13	9
40	School Psychologist	135	90	79	79	64	33	7
42	School Guidance and Counseling	145	99	98	91	81	41	9
55	Health Education	120	92	87	82	73	50	11
56	Marketing and Distributive Education	120	94	94	78	48	15	8
57	Earth/Space Science	120	93	78	62	40	18	9

*Percentages may not equal 100% for a test due to omissions.
NA = Not Applicable

Appendix B

Summary of Data Analyses on Comparisons of Curriculum Content and Test Topic Emphasis by Test

Test (Number and Name)		Difference in Relative Emphasis Index*	N
11	Music Education	18.4	11
13	Art Education	29.2	9
23	Biology	NA	NA
24	Chemistry	NA	NA
26	Physics	NA	NA
27	Teaching Hearing Impaired Students	28.8	8
28	Teaching Visually Impaired Students	14.4	6
35	Special Education	20.6	9
39	Psychology	37.6	9
41	School Psychologist	48.1	7
42	School Guidance and Counseling	64.7	7
55	Health Education	19.1	11
56	Marketing and Distributive Education	47.3	8
57	Earth/Space Science	48.1	7

*Index range: 0 to 100
Low score indicates close similarity; high score indicates little similarity.

Appendix C

Summary of Data Analyses on Comparisons of Curriculum Content and Test Content by Test

Test (Number and Name)		Percentage of College Personnel Choosing Each Response Option*				N
		Close Parallel %	Some Difference %	Much Difference %	Little Similarity %	
11	Music Education	27	46	27	0	11
13	Art Education	22	56	22	0	9
23	Biology	NA	NA	NA	NA	NA
24	Chemistry	NA	NA	NA	NA	NA
26	Physics	NA	NA	NA	NA	NA
27	Teaching Hearing Impaired Students	13	88	0	0	8
28	Teaching Visually Impaired Students	0	50	33	0	6
35	Special Education	33	67	0	0	9
39	Psychology	0	56	33	11	9
40	School Psychologist	14	57	14	0	7
42	School Guidance and Counseling	29	57	0	0	7
55	Health Education	0	82	9	0	11
56	Marketing and Distributive Education	13	63	13	0	8
57	Earth/Space Science	0	57	43	0	7

*Percentages may not equal 100% for a test due to omissions.
NA = Not Applicable

Appendix D

Summary of Data Analyses on Job Relevance Ratings of Tests Items by Test*

Test (Number and Name)	No. of Items	Percentage of Public School Personnel Who Rated Item Content as Relevant to Job: Over 50%	Over 60%	Over 70%	Over 80%	Over 90%	N
11 Music Education	150	83	70	59	48	20	9
13 Art Education	150	82	76	67	51	37	12
23 Biology	150	NA	NA	NA	NA	NA	NA
24 Chemistry	120	NA	NA	NA	NA	NA	NA
26 Physics	120	NA	NA	NA	NA	NA	NA
27 Teaching Hearing Impaired Students	120	98	89	78	59	30	9
28 Teaching Visually Impaired Students	120	96	93	86	78	66	13
35 Special Education	150	90	86	78	64	44	9
39 Psychology	120	95	86	78	63	32	10
40 School Psychologist	135	87	76	61	43	19	9
42 School Guidance and Counseling	145	96	90	75	49	20	9
55 Health Education	120	87	81	72	59	48	12
56 Marketing and Distributive Education	120	98	96	94	88	66	11
57 Earth/Space Science	120	96	90	78	58	25	10

*Percentages may not equal 100% for a test due to omissions.
NA = Not Applicable